

## ABSTRACT

**[0072]** A bi-directional seal assembly can be used in various types of cartridge valves including dirty fluid valves and a variety of other valves. The present seal assembly utilizes a seal spool, two O-rings and opposing seal cups. Back-up rings are provided to engage the O-rings to control deformation of the O-rings. The O-rings are compressed during manufacture of the seal assembly and the valve more than typically recommended by O-ring manufacturers. Because of this compression, the O-rings serve a dual function. At lower pressures, the O-rings act as a spring causing the seal cups to contact the opposing seal plates and at higher pressures they act as seals between the seal assembly and the valve.